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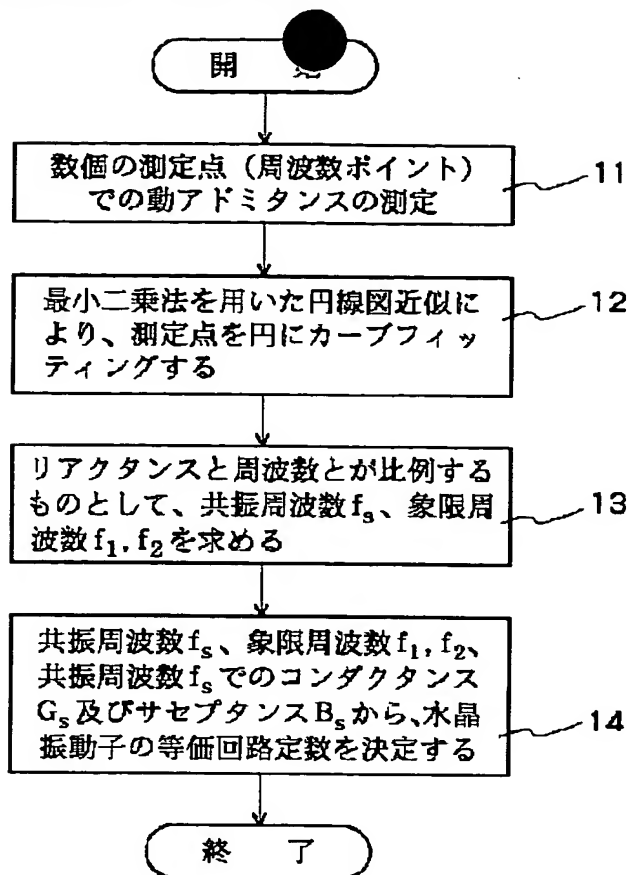
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TITLE : MEASURING METHOD FOR
EQUIVALENT CIRCUIT CONSTANT OF
PIEZOELECTRIC VIBRATOR



ABSTRACT : PROBLEM TO BE SOLVED: To measure in a short time an equivalent circuit constant of a quartz vibrator having a large Q-value.

SOLUTION: Dynamic admittance of a quartz vibrator is measured (step 11) with a network analyzer at a few measuring points with different frequencies. A circle that the measuring point on a admittance plane fits most is obtained (step 12) with a circle diagram approximation using minimum mean-square method and the frequency (resonance frequency f_s) of the resonance frequency point and a pair of frequencies (quadrant frequencies f_1 and f_2) of quadrant frequency points are obtained (step 13) on the circumference of the obtained circle with an approximation calculation on the condition that reactance and frequency are proportional in the frequency region between the pair of quadrant frequency. With the value of each frequency f_s, f_1 and f_2 and conductance G_s and susceptance B_s at the resonance frequency f_s , each equivalence circuit constant of the quartz vibrator is calculated.

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